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(54) MASSAGE MACHINE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a massage machine capable of applying an effective massage according to the variation of obtained physiological data of a subject by centralizing measuring means for measuring the pulse ratedermal temperatureetc.of the subject on a remote controller.

SOLUTION: The massage machine has massaging fingers 13 and 13 for massaging the body of a subject and a control means 20 for controlling the motion of the massaging fingers 13 and 13and is operated by the remote controller 30. The remote controller 30 has a first finger-rest part 36 and a second finger-rest part 37 to which the subject's fingers abut when the subject holds the remote controller. In the massage machinea means 40 for measuring physiological data of the subject generated when massage is applied to the subject is mounted in the first finger-rest part 36 and/or the second finger-rest part 37.

CLAIMS

[Claim(s)]

[Claim 1]free medical treatment which massages along with a treated patient's body -- a finger (13) and (13) -- this -- free medical treatment -- it having a control means (20) which controls operation of a finger (13) and (13)and in a massaging machine operated with the remote control (30)First-digit restrictive defect impairment (36) and second-digit restrictive defect impairment (37) to which a treated patient's finger hits it when a treated patient grasps in a remote control (30) are formedA massaging machinewherein a means (40) to measure a treated patient's physiology information produced by having added a massage to a treated patient in first-digit restrictive defect impairment (36) and/or second-digit restrictive defect impairment (37) is arranged.

[Claim 2]The massaging machine according to claim 1 which is a means by which a physiology information measuring means (40) measures a treated patient's pulseskin temperatureand/or electric impedance of skin.

[Claim 3]A physiology information measuring means (40) is electric impedance of skin a means (43) to measurein order to investigate a treated patient's sweat rateand this electric-impedance-of-skin measuring means (43)The massaging machine according to claim 1 or 2 which contains the electrode (44) and (45) of a couple and with which the electrode (44) and (45) is arranged by first-digit restrictive defect impairment (36) and second-digit restrictive defect impairment (37)respectively.

[Claim 4]The massaging machine according to any one of claims 1 to 3 with which a physiology information measuring means (40) is a pulse measuring means (41)and this pulse measurement means (41) is arranged by first-digit restrictive defect impairment (36) or second-digit restrictive defect impairment (37).

[Claim 5]The massaging machine according to any one of claims 1 to 4 with which a physiology information measuring means (40) is a skin temperature measuring means (42)and this skin temperature measuring means (42) is arranged by first-digit restrictive defect impairment (36) or second-digit restrictive defect impairment (37).

[Claim 6]The massaging machine according to any one of claims 3 to 5 with which an electrode (44)a pulse measuring means (41)and a skin temperature measuring means (42) for resistance Measurement Division are arranged by either first-digit restrictive defect impairment (36) or second-digit restrictive defect impairment (37)and an electrode (45) is arranged by finger restrictive defect impairment of another side.

[Claim 7]The massaging machine according to claim 6 with which second-digit restrictive defect impairment (37) is cut in a case (31) of a remote control (30)and a pulse measuring means (41)a skin temperature measuring means (42)and an electrode (44) are arranged by the bottom.

[Claim 8]As for an electrode (44)a long hole (44a) is established in an approximately center.

The massaging machine according to claim 6 or 7 with which it is the shape where it dented towards this long hole (44a)and a pulse measuring means (41) and a skin

temperature measuring means (42) are arranged by long hole (44a) of an electrode (44).

[Claim 9]The massaging machine according to any one of claims 6 to 8 with which an edge (37a) which swelled around an electrode (44) is formed in a case (31) of a remote control (30).

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the massaging machine which can perform an effective massage according to change of physiology informationincluding a treated patient's pulseskin temperatureetc.

[0002]

[Description of the Prior Art]In the chair type massage machine (10) which a treated patient can sit on a chair and can receive a massagethe free medical treatment which massages as shown in drawing 1 -- the finger (13) and (13) is arranged so that rise and fall inside back reclining (11) of a chair are possiblethe portion covering the back and the waist is struck and massaged from a treated patient's headand it massages with rolling or these combination.

[0003]in a common chair type massage machinea treated patient strikes manually and rubs -- etc. -- massaging operation (henceforth "a manual course") being chosenorThe massage to a treated patient is performed by choosing the massage program (henceforth "an automatic course") which combined two or more massaging operation.

[0004]In order to heighten a massage effectit is desirable to perform the massage according to stiffness condition or a relaxed degree. For examplewhen stiffness is stronga stronger massage is performedand when stiffness is weakit asks for a weaker massage. It is because a treated patient will sense unsatisfactory or will sense that it is painful or unpleasantif a weaker massage is performed to the strong portion of stiffness and the stronger massage into the weak portion of stiffness is performed.

[0005]Thenthe physiology information of the treated patient who changes according to the effectiveness condition of a massagefor examplea pulsebody temperatureand electric impedance of skin are measuredand the massaging machine massaged according to this measurement result is also proposed.

[0006]

[Problem(s) to be Solved by the Invention]Howeversince the above-mentioned physiology measure-of-information means was arranged every elbow of the chair at the Sagitta partit needed to change the composition of the massaging machine (10) greatly. Since each physiology information was measured in a different positionalso mechanistically and electrically it became a high cost and was not still

more enough in respect of the Measurement Division performance.

[0007]The purpose of this invention is to provide the massaging machine which can perform the effective massage according to change of the physiology information acquired by collecting the measuring means of physiology informationincluding a treated patient's pulseskin temperatureetc.to a remote control.

[0008]

[Means for Solving the Problem]In order to solve an aforementioned problema massaging machine (10) of this inventionfree medical treatment which massages along with a treated patient's body -- a finger (13) and (13) -- this -- free medical treatment -- it having a control means (20) which controls operation of a finger (13) and (13)and in a massaging machine operated with the remote control (30)First-digit restrictive defect impairment (36) and second-digit restrictive defect impairment (37) to which a treated patient's finger hits it when a treated patient grasps to a remote control (30) are formedA means (40) to measure a treated patient's physiology information produced by having added a massage to a treated patient in first-digit restrictive defect impairment (36) and/or second-digit restrictive defect impairment (37) is arranged.

[0009]

[Function and Effect]Since the means for physiology information measurement was collected to the remote control (30) which operates a massaging machine (10)it can be considered as a low cost thing mechanically and electrically. It is not necessary to change a massaging machine body structurallyand can respond also to the conventional massaging machine. Since it was made to measure by a treated patient's grasping a remote control (30) for physiology informationand putting a finger on the finger restrictive defect impairment (36) and (37)a treated patientSince that it is in the measurement state can regulate a motion of the finger which could understand intuitively and was placed by the finger restrictive defect impairment (36) and (37)measurement reliability can be improved. The physiology information measured by the physiology information measuring means (40) changes with a treated patient's stiffness condition and relaxed degreesand these information is transmitted to a control means (20).

[0010]Based on the information received from the physiology information measuring means (40)a control means (20)judging the condition and the relaxed degree of a treated patient's stiffnessand responding to stiffness -- strength kindspeedand free medical treatment -- it massages to a treated patient by the massage program which changed time -- as -- free medical treatment -- the finger (13) and (13) is controlled.

[0011]

[Embodiment of the Invention]It is a perspective view of the remote control (30) of the massaging machine (10) with which drawing 1 was provided with the perspective view of a chair type massage machine (10)and drawing 3 was provided with the physiology information measuring means (40).

[0012]To back reclining (11) of a chaira massaging unit (12) is arranged so that

rise and fall are possibleand a massaging machine (10) is constitutedas shown in drawing 1. a massaging unit (12) -- back reclining -- free medical treatment of the couple ahead projected from (11) -- having the finger (13) and (13) -- this -- free medical treatment -- a massage is performed to a treated patient by operating the finger (13) and (13) in three dimensions to the upper and lower sidesright and leftand order. Control of a massaging machine (10) is performed by the control circuit (21) arranged in the proper place of the massaging machine (10). for examplefree medical treatmentas shown in drawing 2 when carrying out the three-dimensional drive of a finger (13) and (13) by two sets of motors and going up and down a massaging unit (12) by one set of a motorIt is electrically connected to a control circuit (21)and each motor (14)(15)and (16) is controlled by this control circuit (21). A control circuit (21) constitutes the control means (20) of the whole massaging machine with the remote control circuit (22) of the remote control (30) mentioned later.

[0013]As shown in drawing 3it is electrically connected with a massaging machine (10) by wiring (34)and various operations of a massaging machine (10) are performedor a remote control (30) displays an operating state and the below-mentioned physiology information. The manual operation button (32) which orders the surface of the case (31) which a treated patient grasps with the both hands (60) and (61) various operations of a massaging machine (10) as a remote control (30) is shown in drawing 3 and drawing 4and (32)It has a display (33) which displays varieties of informationsuch as an operation situation of a massaging machine (10)and a treated patient's physiology information measuring means (40). As shown in drawing 2inside a case (31) A manual operation button (32)The remote control circuit (22) which processes the information acquired by controlling a display (33) and a physiology information measuring means (40) is arrangedand a remote control circuit (22) is electrically connected to the control circuit (21) arranged at the massaging machine (10) side.

[0014]The physiology information measuring means (40) can consist of a means (41) to measure the pulse which measures a treated patient's pulseand a means (43) to measure electric impedance of skin in order to investigate the means (42) and sweat rate which measure skin temperatureas shown in drawing 2. In this inventionphysiology informationmay mean a physiological quantity which changes according to stiffness or a relaxed statewhen a treated patient receives a massagean electroencephalograma breathing rateblood pressureetc. can be illustrated in addition to an above-mentioned pulse etc.and a means to measure these may be used.

[0015]The pulse measuring means (41) can constitute photosensor and the skin temperature measuring means (42) can constitute a thermo sensitive register and an electric-impedance-of-skin measuring means (43) from the electrode (44) and (45) of a couple. As shown in drawing 4a physiology information measuring means (40)When the treated patient has held the both sides of a remote control case (31) with the both hands (60) and (61)To the hitting second-digit restrictive defect impairment (37)the left-hand index finger (62) of the upper left side of a case (31).

The module for measurement (50) provided with a pulse measuring means (41)a skin temperature measuring means (42)and an electrode (44) was arranged and the electrode (45) of another side is arranged at the first-digit restrictive defect impairment (36) equivalent to which the left-hand thumb (63) on the left-hand side of [front] a case (31) is.

[0016]The top view of the module for measurement (50) in which drawing 5 is attached to second-digit restrictive defect impairment (37)and drawing 6 are the arrowed cross-section figures in alignment with line VI-VI of drawing 5. The opening (31a) is established in the upper left side of the case (31) in which a second-digit rest (37) is located.

The module for measurement (50) has fitted into this opening (31a).

The edge (37a) where some cases (31) swelled was formed in the periphery of an opening (31a)and on itit has protected so that each measuring means (41)(42)and (44) of the module for measurement (50) may contact a floor line etc. directly and may not be damaged. A physiology information measuring means (40) is arranged by the module for measurement (50). Specificallyit has an electrode (44) as a thermo sensitive register and an electric-resistance-measurement means (43) as photosensor and a skin temperature measuring means (42) as a pulse measuring means (41). As shown in drawing 6conductive metal plating is performed to the surface of a resin-molding article (44b)and an electrode (44) is constituted and it is attached so that it may **** outside from the opening (31a) of a case (31). The long hole (44a) is established by the electrode (44) at the center portion.

The circumference of the long hole (44a) is dented towards the long hole (44a) side so that the tip of an index finger (62) may fit.

The electrode (44) is electrically connected to the module board (51) mentioned later. As shown in drawing 6a pulse measuring means (41) and a skin temperature measuring means (42) penetrate a lead (41a) (42a) to the support member (52) arranged on the module board (51)and are supported. The tip of the lead (41a) (42a) is electrically connected to the module board (51). A pulse measuring means (41) approaches inside a wrap transparent cover (53)and the long hole (44a) of an electrode (44) is arranged. What covered the temperature measurement outside circumference with the epoxy resin can be used for a skin temperature measuring means (42)and it is ****ing out of direct from the hole (53a) by which the circumference was surrounded by the sealant (54) with a flexible portion except the tip of an epoxy resin coating part and the tip was established by the transparent cover (53).The screw stop of a module board (51) and the support member (52) is carried out to the resin part (44b) of the electrode (44) from the inside with the screw (55) and (55) which penetrates these. As are shown in drawing 6 and the drawer lead (51a) which transmits a pulse measuring means (41)a skin temperature measuring means (42)and the information from an electrode (44) is electrically connected and it is shown in drawing 2 from a module board (51)The pulse measuring means (41)the skin temperature measuring means (42)and the electrode (44) are electrically connected with the remote control circuit (22) via the module board (51).

[0017]First-digit restrictive defect impairment (36) is formed in the front left-hand side of the case (31) which the left-hand thumb (63) hits. The electrode (45) of the electric-resistance-measurement means (43) is attached to first-digit restrictive defect impairment (36).

Conductive metal plating is performed to a resin-molding articleand it is constituted.

This electrode (45) is electrically connected to a remote control circuit (22) in a similar manner.

[0018]Veryif a treated patient holds a remote control (30) with the both hands (60) and (61)The index finger (62) of nature and a left hand (60) hits the module (50) of the 2nd restrictive defect impairment (37)and the left (60) thumb (63) is equivalent to the electrode (45) formed in the first-digit restrictive defect impairment (36) of the front face of a case. The tip of an index finger (62) is stuck in this state that there is no unreasonableness in the pulse measuring means (41) and skin temperature measuring means (42) which were formed in the central dent portions of an electrode (44) and an electrode (44)The left (60) thumb (63) is stuck to the electrode (45) formed in the first-digit restrictive defect impairment (36) of the front face of a case.

[0019]If a physiology measure of information is starteda treated patient's pulse will be measureda skin temperature measuring means (42) will measure the skin temperature of an index finger (62)and a pulse measuring means (41) will transmit a measurement result to a remote control circuit (22). Voltage is impressed between an electrode (44) and (45)by detecting weak currentthe electrical resistance between an index finger (62) and the thumb (63) is measuredand a measurement result is transmitted to a remote control circuit (22).

[0020]Based on the measured physiology informationa control means (20) judges stiffness condition and a relaxed degreeand controls the motor (14)(15)and (16). For exampleaccording to a treated patient's stiffness conditiona massage strong against the strong portion of stiffness and the weaker massage into the weak portion of stiffness are performed. Thereforethe treated patient can receive the effective massage which senses neither thing insufficient nor a painand will be in the state where it relaxed.

[0021]Before each above-mentioned physiology information executes a massage programit can perform a preliminary massage beforehand and can measure it during a preliminary massage. In this casea massage program is determined based on the result obtained by the preliminary massage. further -- free medical treatment -- in order to perform the high massage of an effectit is desirable to measure physiology information in real timeexecuting a massage programto feed back the resultand to correct a massage program.

[0022]Explanation of above-mentioned working example is for explaining this inventionand it should not be understood so that the invention of a description may be limited to Claims or the range may be reduced. Various modification is possible for each part composition of this invention in technical scope given not

only in above-mentioned working example but Claims.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]It is a perspective view of a chair type massage machine.

[Drawing 2]It is a block diagram showing the composition of the massaging machine of this inventionand the electric system of a remote control.

[Drawing 3]It is a perspective view of a remote control.

[Drawing 4]It is a perspective view showing the state where the treated patient has held the remote control with both hands.

[Drawing 5]It is a top view of the module for measurement.

[Drawing 6]It is an arrowed cross-section figure in alignment with line VI-VI of drawing 5.

[Description of Notations]

(10) Massaging machine

(13) free medical treatment -- a finger

(20) Control means

(40) Physiology information measuring means

(41) Pulse measuring means

(42) Skin temperature measuring means

(43) Electric-resistance-measurement means
